WM-A10/B10/A18/B18

SERVICE MANUAL

Photo : WM-B10
(See page 10)

US Model
Canadian Model
WM-A10
AEP Model
UK Model
E Model
French Model
WM-B10
US Model
Canadian Model
WM-A18
AEP Model
WM-B18

Model Name Using Similer Mechanism	WM-31/41
Tape Transport Mechanism Type	MT-WMA10-04

SPECIFICATIONS

Frequency response
40-14,000Hz

Power output
10mW + 10mW at DC operation (at 10% harmonic distortion) load impedance 32 ohms: for Canada, United Kingdom and AEP.
15mW + 15mW at DC operation (at 10% harmonic distortion) load impedance 32 ohms: FOR US
5mW + 5mW at DC operation (at 10% harmonic distortion) load impedance 16 ohms: for other countries

Power requirements
3V DC
Two R6 (size AA) batteries
Sony rechargeable battery BP-700
DC IN 3V jack accepts
Optional Sony AC-D2M AC power adaptor available in the United Kingdom for use on 240V AC 50Hz.
Optional Sony AC-D2L AC power adaptor available in Canada for use on 120V AC, 60Hz.
available in other countries for use on 120V AC, 60Hz or 220V AC, 50Hz.

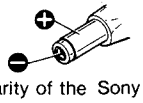
Battery life
Approx. 8 hours using Sony alkaline batteries AM3 (N)

Dimensions
WM-A18/B18: Approx. 88 x 122 x 32.5mm (w/h/d)
WM-A10/B10: Approx. 88 x 122 x 31.5mm (w/h/d)
Not incl. projecting parts and controls

Weight
WM-A18/B18: Approx. 205g
WM-A10/B10: Approx. 200g
Incl. batteries, not incl. other accessories

Accessories supplied
For Canada and the United Kingdom:
Stereo headphones (Open-air type, 1)
For other countries:
Stereo earphones (Open-air type, 1)
Ear adaptors (2)
For only WM-A18/B18:
Rechargeable battery (1)
Battery charger (1)

Note: Use only the recommended AC power adaptor or car battery cord manufactured by Sony. Polarity of the plugs of other manufacturers may be different.



Polarity of the Sony plug

MICROFILM

CASSETTE PLAYER

SONY®

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

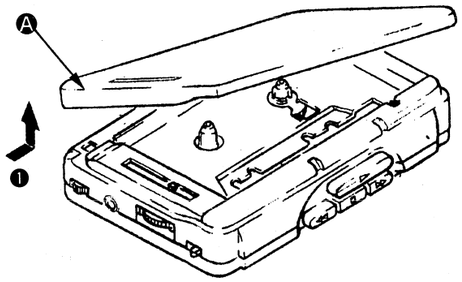
Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SECTION 1
DISASSEMBLY AND INSTALLATION

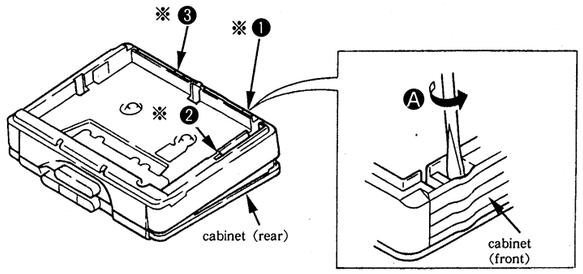
1-1. CASSET HOLDER ASSY REMOVAL

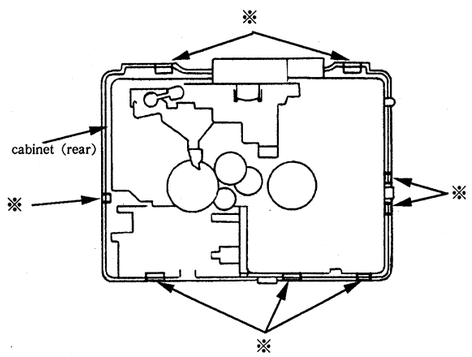
1) Open the cassette holder.
2) Move the left latch in the direction of the arrow ❶ to release it.
3) Release the right latch.
4) Remove the cassette up spring.



1-2. CABINET (REAR) ASSY REMOVAL

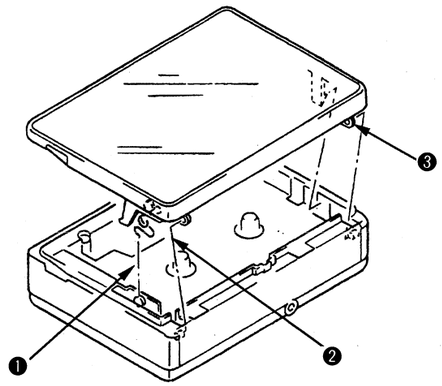
Note :Follow the disassembly procedure the numerical order given.
1) Insert a driver (−) in to the portion (※).
2) Move the driver in the direction of the arrow (Ⓐ).
3) Release the claw (※).





1-3. CASSET HOLDER ASSY INSTALLATION

Note :Follow the disassembly procedure the numerical order given.



SECTION 2
MECHANICAL AND ELECTRICAL ADJUSTMENT

MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured−alcohol−moistened swab :
   playback head pinch roller
   capstan idlers
   rubber belts
2. Demagnetize the playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Meter Reading	Torque Meter
Foward	22−45g・cm (0.31−0.63oz・inch)	CQ-102C
Fast Forwand and Rewind	55−150g・cm (0.77−2.1oz・inch)	CQ-201B
Back Tension	1−2.5g・cm (0.014−0.35oz・inch)	CQ-102C

Tape Tension Measurement

Meter	Meter Reading
CQ-403A	more than 90g (1.26oz)

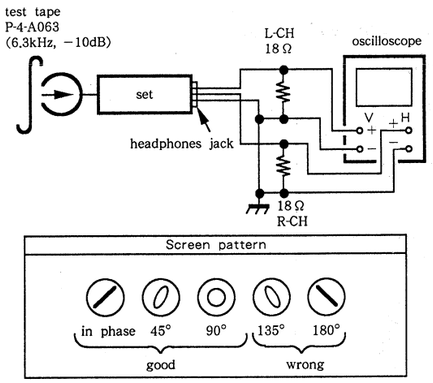
ELECTRICAL ADJUSTMENTS

CASSETTE SECTION

Playback Head Phase Check

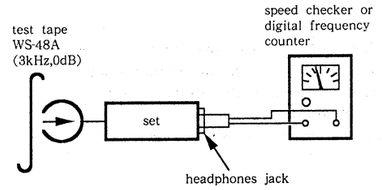
Note :When replacing the head, check the both L-ch and R-ch phases.

Procedure :
Phase Check
Mode : playback



Tape Speed Adjustment

Procedure :
Mode : playback

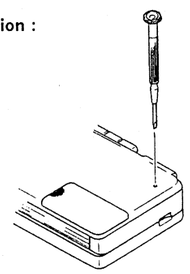


Specification :

speed checker	digital frequency counter
±1%	2,970−3,030Hz

Frequency difference between the beginning and the end of the tape should be within±2.5% (±75%Hz).

Adjustment Location :



WM-A10/B10/A18/B18

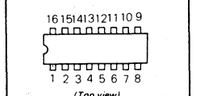
SECTION 3
DIAGRAMS

Semiconductor Location

Ref.No	Location
IC301	E-10
Q301	I-7
Q302	I-7

Semiconductor Lead Layouts

LA4570

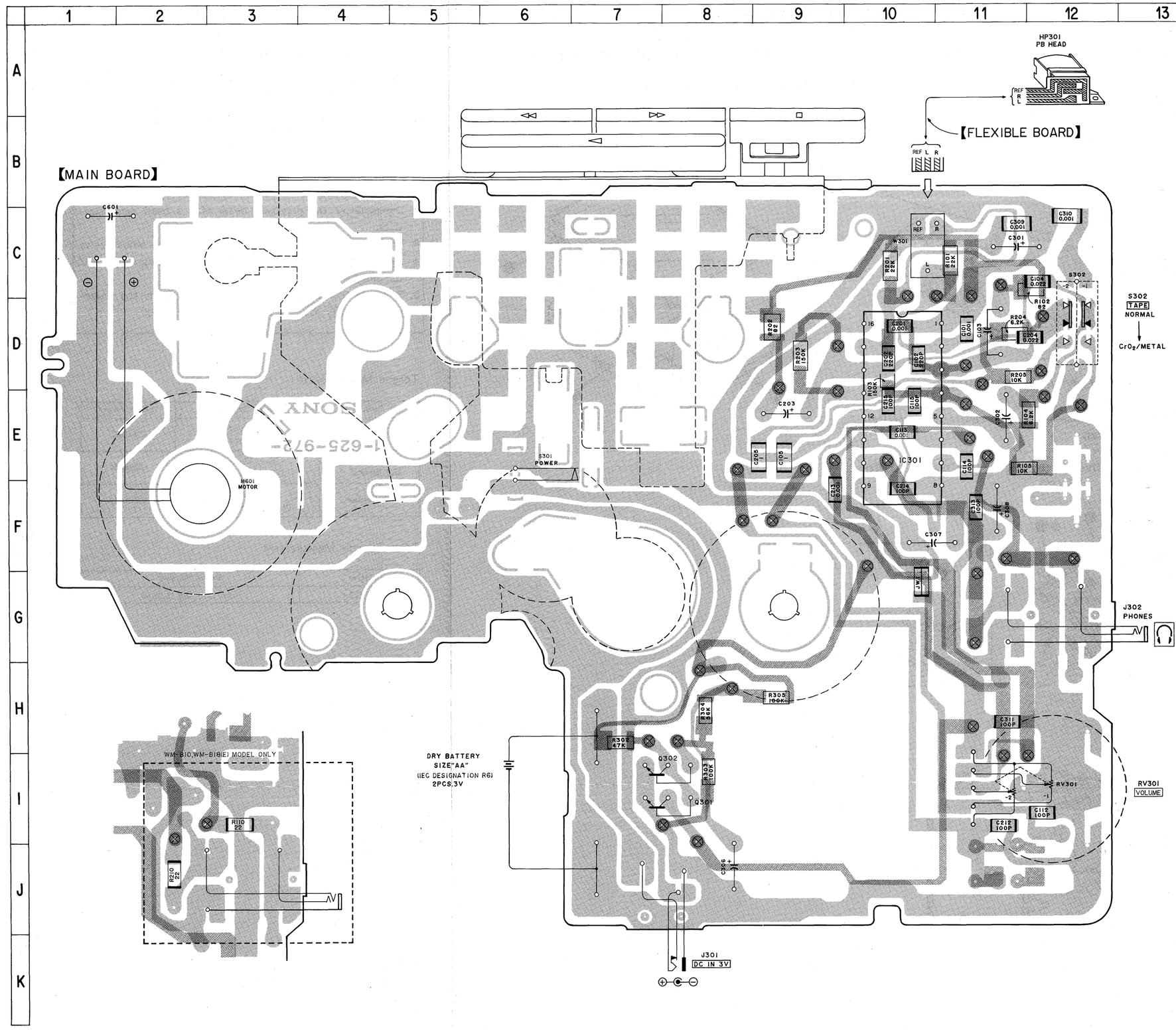


2SC2458

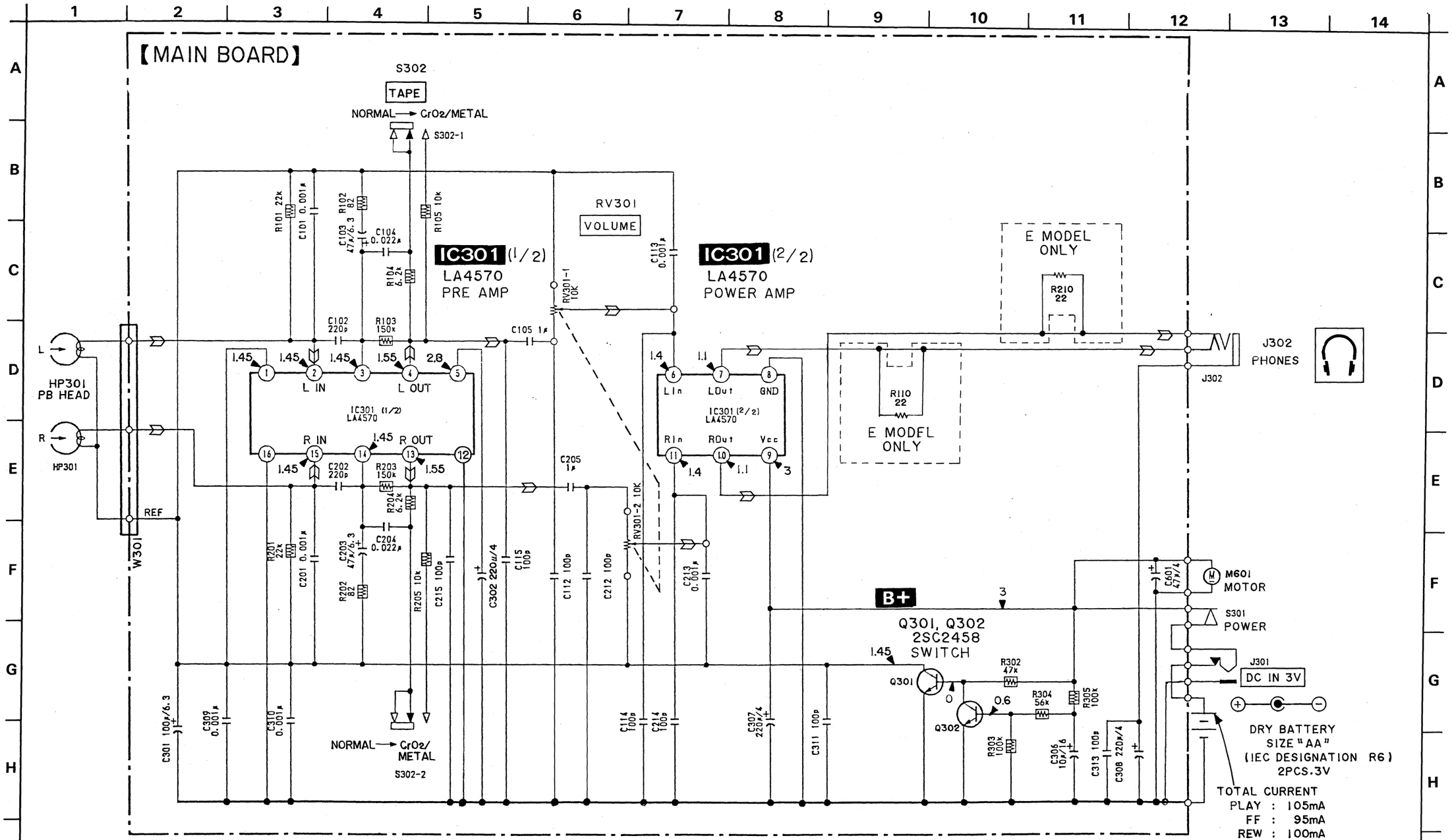
Note:

- ○——: parts extracted from the component side.
- ●——: parts extracted from the conductor side.
- ■ : parts mounted on the conductor side.
- ⊗ : Through hole.
- ▒▒ : Pattern on the side which is seen.
- ▒▒ : Pattern of the rear side.

PRINTED WIRING BOARD



SCHEMATIC DIAGRAM



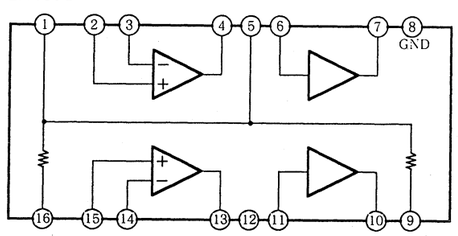
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- : printed resistor.
- Switch

Ref. No.	Switch	Position
S301	POWER	OFF
S302	TAPE	NORMAL

- Total current is measured with no cassette installed.
- Power voltage is dc 3V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : PLAY
- Voltages are taken with a VOM (50 kΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Signal path.
  : PB

LA4570



WM-A10/B10/A18/B18

SECTION 4
EXPLODED VIEW

NOTE:

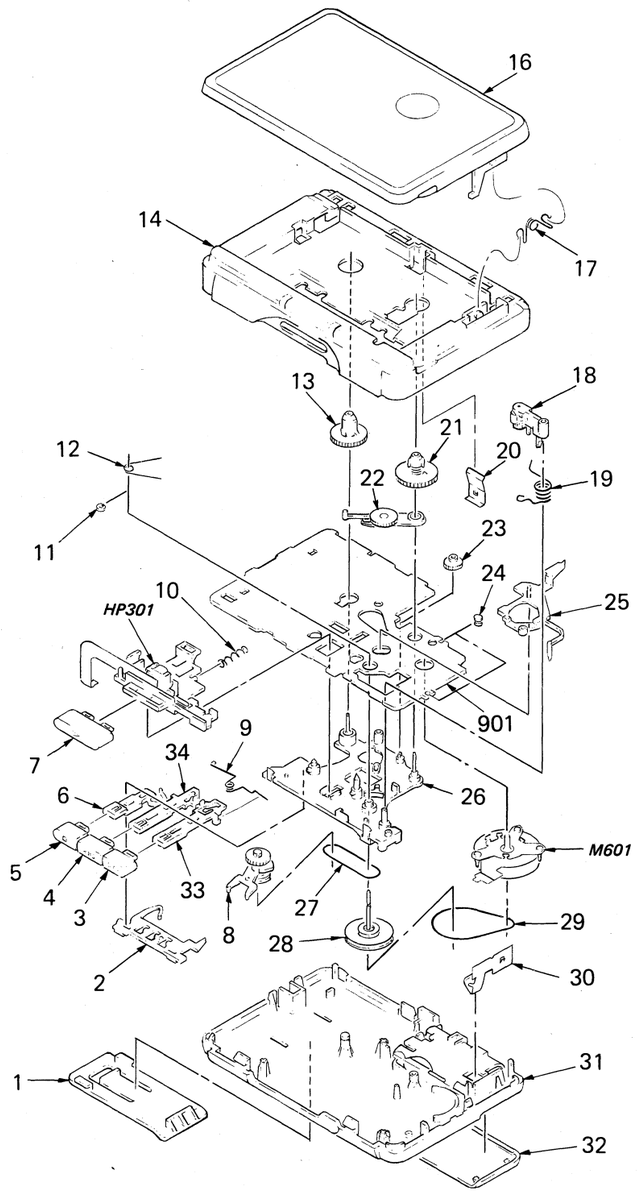
- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ ↑
  Cabinet's Color Parts' Color

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifé.

(1)



• CASSETTE HOLDER ASSY (WM-A10/B10)

X-3346-561-1

X-3346-564-1 (WHT)

X-3346-567-1 (BLU)

X-3346-562-1

X-3346-565-1 (BLK)

X-3346-568-1

X-3346-563-1

X-3346-566-1 (RED)

X-3346-569-1

Ref.No	Part No.	Description	Remark
1	3-346-518-01	CLIP, BELT	
2	3-346-522-01	PLATE, LOCK	
3	3-346-513-01	(WM-A10/B10)....BUTTON (FF)	
3	3-346-513-11	(WM-A18/B18)....BUTTON (FF)	
4	3-346-514-01	(WM-A10/B10)....BUTTON (REW)	
4	3-346-514-11	(WM-A18/B18)....BUTTON (REW)	
5	3-346-515-01	(WM-A10/B10)....BUTTON (STOP)	
5	3-346-515-11	(WM-A18/B18)....BUTTON (STOP)	
5	3-346-528-01	LEVER (STOP)	
7	3-346-512-01	(WM-A10/B10)....BUTTON (PLAY)	
7	3-346-512-11	(WM-A18/B18)....BUTTON (PLAY)	
8	X-3346-503-1	GEAR ASSY, MIDWAY	
9	3-346-539-01	SPRING (FR)	
10	3-335-605-01	SPRING, COMPRESSION	
11	3-343-358-01	RING, RETAINING	
12	3-346-538-01	SPRING (GROUND)	
13	3-346-525-01	GEAR (S REEL)	
14	3-346-520-01	(WM-A10/US : BLK)....CABINET (FRONT) (TC-A)	
14	3-346-520-11	(WM-A10/US : GRY)....CABINET (FRONT) (TC-A)	
14	3-346-520-21	(WM-B10 : BLK)....CABINET FRONT	
14	3-346-520-31	(WM-B10 : GRY)....CABINET FRONT	
14	3-346-520-41	(WM-A18 : BLK)....CABINET FRONT	
14	3-346-520-51	(WM-B18 : GRY)....CABINET FRONT	
16	X-3346-537-1	(WM-B18 : RED)....HOLDER (TC-B) ASSY	
16	X-3346-538-1	(WM-B18 : BLU)....HOLDER (TC-B) ASSY	
16	X-3346-539-1	(WM-B18 : BLK)....HOLDER (TC-B) ASSY	
16	X-3346-540-1	(WM-A18 : BLK)....HOLDER (TC-B) ASSY	
17	3-346-509-01	SPRING (CASSETTE UP)	
18	X-3334-005-1	PINCH ROLLER ASSY	
19	3-335-608-01	SPRING	
20	3-346-516-01	SPRING	
21	X-3346-502-1	TABLE ASSY, T REEL	
22	X-3346-504-1	GEAR ASSY, PLAY	
23	3-334-089-01	GEAR, FF	
24	3-335-652-01	CUSHION (C), MOTOR	
25	3-346-523-01	LEVER (SHUT-OFF)	
26	X-3346-501-1	BASE ASSY, GUIDE	
27	3-335-604-01	BELT, MIDWAY	
28	X-3346-505-1	WHEEL ASSY, CAPSTAN	
29	3-334-412-01	BELT, CAPSTAN	
30	3-334-057-01	TERMINAL BOARD, RELAY	
31	3-346-519-01	CABINET (REAR) (TC-B) (BLACK)	
31	3-346-519-11	(WM-A10/B10 : WHT)....CABINET (REAR) (TC-B)	
31	3-346-519-21	(WM-A10/B10 : RED)....CABINET (REAR) (TC-B)	
31	3-346-519-31	(WM-A10/B10 : BLU)....CABINET (REAR) (TC-B)	
31	3-346-519-41	(WM-B18 : RED)....CABINET REAR (TC-B)	
31	3-346-519-51	(WM-B18 : BLU)....CABINET REAR (TC-B)	
32	3-346-517-01	LID, BATTERY CASE (BLACK)	
32	3-346-517-11	LID BATTERY CASE (WHT)	
32	3-346-517-21	(WM-B10/B18 : RED)....LID BATTERY CASE	
32	3-346-517-31	(WM-B10/B18 : BLU)....LID BATTERY CASE	
33	3-346-526-01	LEVER (FF)	
34	3-346-527-01	LEVER (REW)	
901	A-3060-102-A	MOUNTED PCB, MAIN	
HP301	A-3108-292-A	PC BOARD ASSY, HEAD	
M601	1-541-572-11	MOTOR, DC	

SECTION 5
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No	Part No.	Description				Remark
901	A-3060-102-A	MOUNTED PCB, MAIN				
		CAPACITOR				
C101	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	
C102	1-163-125-00	CERAMIC CHIP	220PF	10%	50V	
C103	1-124-224-00	ELECT	47MF	20%	6.3V	
C104	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V	
C105	1-162-638-11	CERAMIC CHIP	1MF		16V	
C112	1-163-117-00	CERAMIC CHIP	100PF	10%	50V	
C113	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	
C114	1-163-117-00	CERAMIC CHIP	100PF	10%	50V	
C115	1-163-117-00	CERAMIC CHIP	100PF	10%	50V	
C201	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	
C202	1-163-125-00	CERAMIC CHIP	220PF	10%	50V	
C203	1-124-224-00	ELECT	47MF	20%	6.3V	
C204	1-163-037-11	CERAMIC CHIP	0.022MF	10%	25V	
C205	1-162-638-11	CERAMIC CHIP	1MF		16V	
C212	1-163-117-00	CERAMIC CHIP	100PF	10%	50V	
C213	1-163-141-00	CERAMIC CHIP	0.001MF	10%	50V	
C214	1-163-117-00	CERAMIC CHIP	100PF	10%	50V	
C215	1-163-117-00	CERAMIC CHIP	100PF	10%	50V	
C301	1-124-225-00	ELECT	100MF	20%	6.3V	
C302	1-124-434-00	ELECT	220MF	20%	4V	
C306	1-124-462-00	ELECT	10MF	20%	16V	
C307	1-124-434-00	ELECT	220MF	20%	4V	
C308	1-124-434-00	ELECT	220MF	20%	4V	
C309	1-163-205-00	CERAMIC CHIP	0.001MF	10%	50V	
C310	1-163-205-00	CERAMIC CHIP	0.001MF	10%	50V	
C311	1-163-117-00	CERAMIC CHIP	100PF	10%	50V	
C313	1-163-117-00	CERAMIC CHIP	100PF	10%	50V	
C601	1-124-432-00	ELECT	47MF	20%	4V	
HP301	A-3108-292-A	PC BOARD ASSY, HEAD				
IC301	8-759-802-85	IC LA4570				
J301	1-565-286-11	JACK, OUTER POWER (DC IN)				
J302	1-565-287-11	JACK (PHONES)				
JR1	1-216-296-00	METAL GLAZE	0	5%	1/8W	
M601	1-541-572-11	MOTOR, DC				
Q301	8-729-600-27	TRANSISTOR 2SC2458				
Q302	8-729-600-27	TRANSISTOR 2SC2458				
		RESISTOR				
R101	1-249-433-11	RES, CARBON	22K	5%	1/32W	
R102	1-249-404-00	RES, CARBON	82	5%	1/32W	
R103	1-215-473-00	RES, CARBON	150K	5%	1/32W	
R104	1-215-440-00	RES, CARBON	6.2K	5%	1/32W	
R105	1-249-429-11	RES, CARBON	10K	5%	1/32W	
R110	1-216-009-00	(WM-B10/B18 : E) ....METAL GLAZE22		5%	1/10W	

Ref.No	Part No.	Description				Remark
R201	1-249-433-11	RES, CARBON	22K	5%	1/32W	
R202	1-249-404-00	RES, CARBON	82	5%	1/32W	
R203	1-215-473-00	RES, CARBON	150K	5%	1/32W	
R204	1-215-440-00	RES, CARBON	6.2K	5%	1/32W	
R205	1-249-429-11	RES, CARBON	10K	5%	1/32W	
R210	1-216-009-00	(WM-B10/B18 : E) ....METAL GLAZE22		5%	1/10W	
R302	1-249-437-11	RES, CARBON	47K	5%	1/32W	
R303	1-249-441-11	RES, CARBON	100K	5%	1/32W	
R304	1-249-438-11	RES, CARBON	56K	5%	1/32W	
R305	1-249-441-11	RES, CARBON	100K	5%	1/32W	
RV301	1-238-072-21	RES, VAR, CABON 10K/10K (VOLUME)				
S301	1-570-549-11	SWITCH, LEAF (POWER)				
S302	1-571-478-11	SWITCH, SLIDE (TAPE)				
W301	1-565-288-11	HOUSING, CONNECTOR 3P				

ACCESSORY & PACKING MATERIAL

1-528-238-21	.(WM-A18)....BATTERY CHARGER BC-700
1-528-239-21	.(WM-A18)....BATTERY STORAGE BP-700
1-528-262-11	.(WM-B18)....BATTERY CHARGER BC-700
1-528-263-11	.(WM-A18)....BATTERY CHARGER BC-700
*3-346-543-01	(WM-A10 : US, FR)....CUSHION (FRONT)
*3-346-544-01	(WM-A10 : US, FR/WM-A18 : US).... CUSHION (REAR)
*3-346-545-01	(WM-A10)....CARDBOARD
*3-346-547-01	(WM-A10)....INDIVIDUAL CARTON
3-346-549-01	(WM-A10/B10, WM-A18/B18)....CUSHION FRONT
3-346-550-01	(WM-A10/B10, WM-A18/B18)....CUSHION REAR
*3-346-551-01	(WM-B10)....INDIVIDUAL CARTON
*3-346-745-01	(WM-A18)....INDIVIDUAL CARTON
*3-346-747-01	(WM-B18)....INDIVIDUAL CARTON
3-786-019-11	(WM-A10/A18/B10)....MANUAL INSTRUCTION
3-786-019-21	(WM-A10/A18 : US)....MANUAL, INSTRUCTION
3-786-019-41	(WM-B10/B18)....MANUAL INSTRUCTION
8-952-236-90	(WM-B10)....HEADPHONE MDR-E212/J (B) SET
8-952-313-90	(WM-A10/A18 : US, CND) (WM-B10/B18 : AEP, FR, UK)....HEADPHONE MDR-005L/B SET

9-953-194-11

Sony Corporation
Audio Group

English
88C0296-1
Printed in Japan
©1988.3
Published by A/V Engineering Service Dept.

WM-A10/B10/A18/B18

SONY

SERVICE MANUAL

US Model
Canadian Model
WM-A10

AEP Model
UK Model
E Model
French Model
WM-B10

US Model
Canadian Model
WM-A18

AEP Model
WM-B18

SUPPLEMENT-1

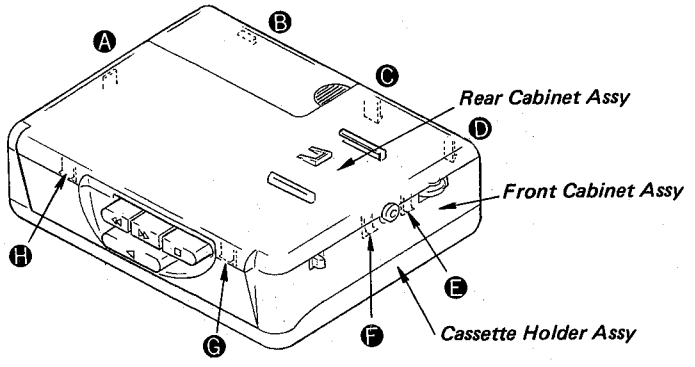
File this supplement with the Service Manual.

Subject: 1] Cassette Holder Removal.
2] Rear Cabinet Removal.

DISASSEMBLY

Location and shape of claws

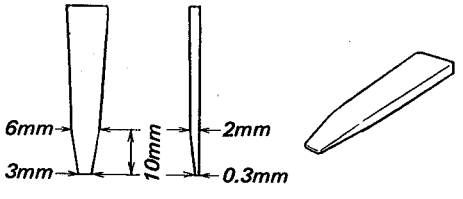
The symbols (Ⓐ – Ⓗ) show the order to uncouple the linkage of the claw, and names of the parts.



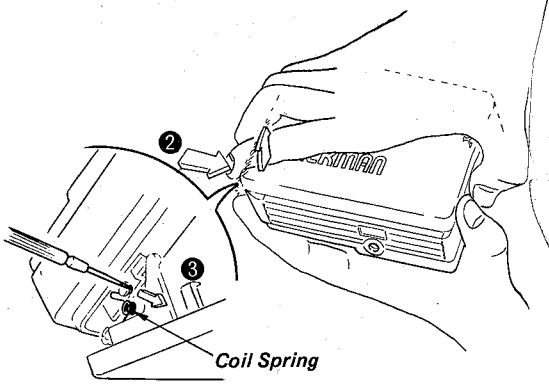
Note: Follow the disassembly procedure the numerical order given.

Tools: Precision Screwdrivers (⊖ , width 0.8mm, 1.4mm, and 2.0mm)
Adhesive tape 1–2cm
Wedge (hand made)

Material . . . soft plastic (such as PVC) etc.
Sizes are for the reference.



[1] Cassette Holder Removal

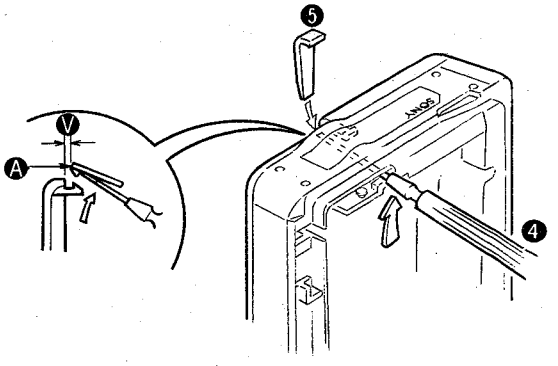


❶ Open the cassette holder.

❷ While pressing the edge of the cassette holder, pullup it in order to take off the cassette holder.

❸ Take off the end of coil spring with a precision screwdriver (width: 0.8mm).

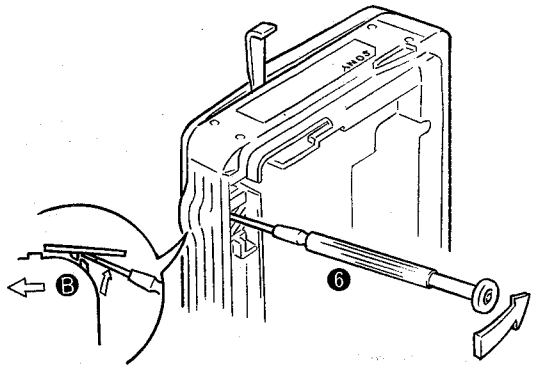
[2] Rear Cabinet Removal



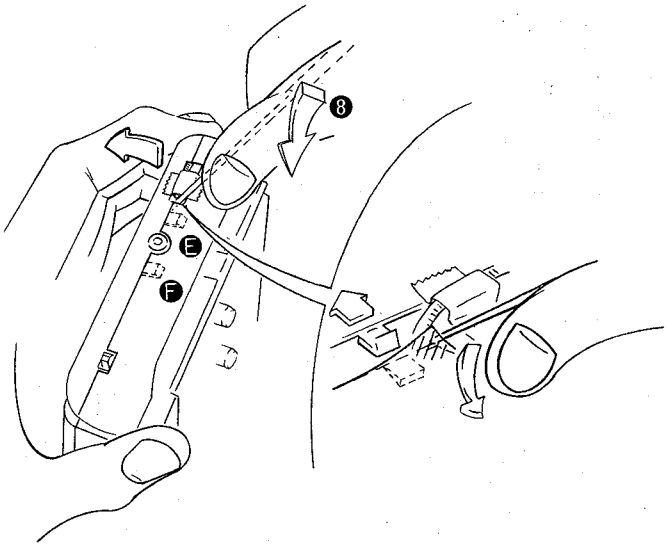
❹ Insert a precision screwdriver (width: 2.0mm) into the slit of front cabinet, lift the front cabinet as shown in the figure for making a clearance (Ⓥ).

❺ Insert a wedge in the clearance.

MICROFILM

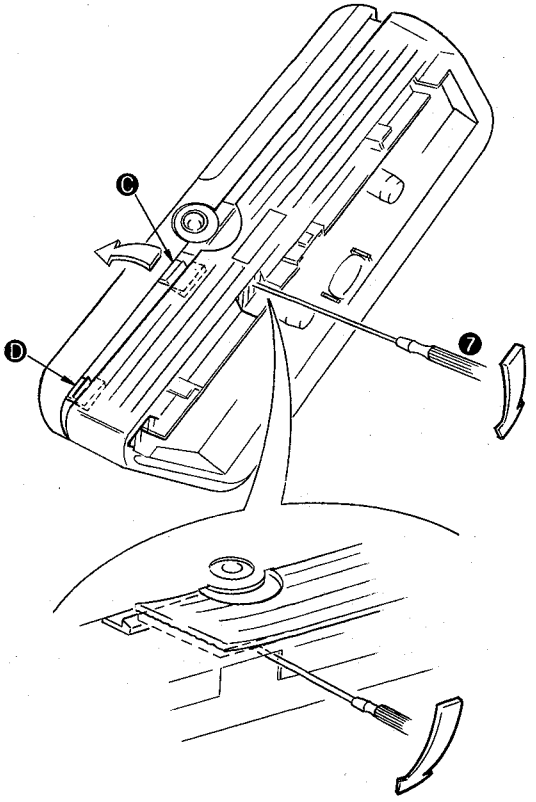


❻ Insert a precision screwdriver (width: 2.0mm), and lift the front cabinet so that the claw Ⓑ comes off.

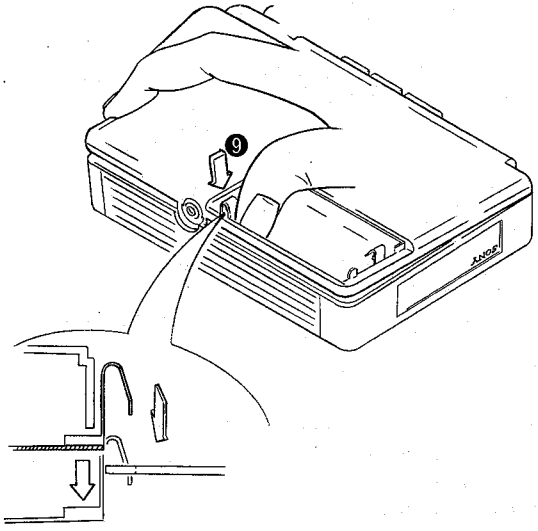


❽ Put a adhesive tape on the volume for protection. Insert a precision screwdriver (width: 1.4 mm) and lift the shaded portion, so that the claw Ⓔ and Ⓕ come off.

CAUTION: Be sure not to touch the volume knob, when inserting precision screwdriver.



❼ In a similar way as procedure ❻ , uncouple the linkage of the claw Ⓒ and Ⓓ .



❾ Press down the battery terminals in order to leave Mounted PCB in the rear cabinet, and then remove the rear cabinet.

9-953-194-81

Sony Corporation
Audio Group

English
88G0289-1
Printed in Japan
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Published by A/V Engineering Service Dept.